Art. XV.—*Elements of General Pathology.* By A. F. Chomel, Prof. of Clinical Medicine, &c. &c. &c. Third edition, considerably enlarged. Translated from the French, by F. E. Oliver, M. D., and W. W. Morland, M. D., Members of the Massachusetts Medical Society. Boston: 1848: pp. 458, 8vo.

This translation of the work of M. Chomel, will, we doubt not, be very acceptable to the profession. It is, indeed, a matter of surprise that a treatise which has deservedly obtained so high a reputation, should not have been earlier made known through the medium of a translation. The reason for this may perhaps be found in that vague impression which so generally prevails, that works on General Pathology are not immediately practical, and therefore of secondary importance; an impression which, certainly, is in a measure justified by the character of nearly all the works upon this subject. Yet, it must be evident, upon reflection, that General Pathology is so intimately connected with practical medicine, that it is very difficult to distinguish their point of union, and still more so, to disjoin them and consider them separately. Indeed, without this co-ordinating element, Medicine is but a confused mass of details, with no mutual dependence, experience resolves itself into experiment, and a rational art is degraded to the level of a barren empiricism. It enters into all medical reasoning, and is the ground-work of all medical treatment, for every practitioner acts either upon his own experience, or upon that of others, refers to the laws which influence the production, the course and termination of diseases, and claims to understand the language of symptoms, and their common therapeutical indications. In other words, he appeals unconsciously to General Pathology, to enlighten and direct him. It is plain, therefore, that if works under this title have not been heretofore received with much favour, it has been because they have imperfectly fulfilled their legitimate object. Instead of containing an exposition of what is known, they abound in confident speculations upon matters beyond our cognizance; the unprofitable ground from which the labour of successive generations has been unable to extract the slightest addition to the stores of science, is cultivated with persevering zeal, while those ample and fertile fields lie waste and abandoned, which would substantially reward their culture.

We welcome, therefore, with sincere pleasure, the appearance of this work, constructed as it is from materials furnished by the experience of one whose high qualifications as an observer, teacher and physician, are so widely known. Moreover, the general tone of the work is such as to fascinate the attention, and it is pervaded with an air of candor, a reliance upon the teachings of Nature, a firm confidence in the progressive improvement of medicine, which impart to it additional attraction, and very much enhance its usefulness. It were, perhaps, desirable that some subjects had been considered at greater length, particularly the causes of disease, and pathological anatomy. It may be remarked, also, that since the publication of the last edition in 1840, investigations with the microscope, and with chemical reagents, have acquired so much importance by the additions made therewith to our positive knowledge of molecular morbid changes, as to render imperfect and inappropriate the short and slighting notice which their uncertainty, at that period, might have warranted.

The order in which the several subjects are treated, is that which would naturally present itself to the mind. M. Chomel, in the opening chapter, unfolds his plan, which we cannot do better than give in his own words.

> "We shall first consider the definition of disease in general, and point out the rules which should guide us in the definition of diseases respectively. After some considerations on the nomenclature, etymology and synonymy, we shall speak of the seat of diseases, their causes, precursory phenomena, symptoms, progress, duration, and various terminations. We shall thus be led to the examination of the doctrine of crises and critical days. Convalescence, the consecutive phenomena, relapse, kinds, varieties and complications of diseases, diagnosis and prognosis will be generally considered. We shall also devote a chapter to the examination and appearance of bodies after death, and having touched upon the fundamental rules of treatment, we shall conclude by offering a few remarks on the nature and classification of diseases."

The prescribed limits of this notice, will preclude us from giving anything more than a mere outline of the multitude of interesting details embraced in this plan. We commence with the *Causes* of disease, which are divided by M. Chomel into three classes, viz.—*Determining*, *Predisposing* and *Occasional or Exciting* causes. This division is, of course, imperfect; cold, for instance, may be placed in any one of the three classes according to its severity, and the time during which the body is exposed to it; the same may be said of heat, and indeed it would not be difficult to find other agents which cannot be rigorously included in any one class. Yet, even with these imperfections, this division is better than those usually made, for it has reference to the mode of action of morbific causes, so far only as this is apparent, while the terms intrinsic and extrinsic, remote and proximate, material and immaterial, and the like, which are all in common use, are based upon conjecture, and are vague and uncertain. *Determining* causes are such as give rise constantly to the same affection, as poisons, asphyxiating gases, and wounding instruments; among them are included also the *specific* causes which produce individually, each a peculiar disease, as e. g. syphilis, rabies and variola. The *general predisposing* causes are, for the most part, diffused in the atmosphere, or arise from certain local conditions; the *individual* embrace the various conditions peculiar to each person, and those external circumstances, such as change of climate, food of bad quality, or of insufficient quantity, compression exercised by various articles of dress, &c., which may predispose more or less to the development of disease. To the word "predisposition," M. Chomel attaches a peculiar signification, admitting the existence, in many cases, of proneness to certain diseases, in persons who have not been exposed to any of their developing causes. It includes all the so-called diatheses, and to those which are already admitted, he would add the varicose, melanic, ulcerative and hemorrhagic. He does not allow the purulent diatheses, but we think that it is better entitled to be ranked among them than the gangrenous, ulcerative and aneurismal, for there are not a few cases upon record, of undoubted primitive pyæmia.

The aneurismal would be more appropriately called the *atheromatous* diathesis, for although the causes of aneurism are various, the only form which gives evidence of a prevailing morbid condition, by its simultaneous or successive occurrence in different parts of the body, is that which is due to the atheromatous transformation of thickened patches upon the internal coat of the arteries. Nor do we think that the gangrenous and ulcerative diatheses can be properly admitted, as they are but secondary symptoms usually depending upon some grave existing disease, or the vitiation of the atmosphere. *Exciting* causes of disease are those which develope it in persons already predisposed.

They are very numerous, but may mostly be referred to the neglect of hygienic and dietetic rules. M. Chomel remarks in speaking of the mode of action of these various causes, that with the exception of those which act mechanically, such as wounding instruments, strangulation of the intestines, &c., there are several steps in the process between the application of the cause, and the production of the disease, which are in complete obscurity. Thus, we know nothing of contagion, except by its results; the contagious character has been accorded to such diseases as are capable of transmission from affected to healthy individuals, and the agent itself, which is inappreciable, has been called a contagious principle.

Whether this contagious principle, which we cannot isolate or know, acts upon the system through the medium of the nerves, the blood or the inspired air, as has been variously supposed, is, and will probably remain, matter of conjecture. M. Chomel hazards the opinion, that by "force of habit," insensibility to the impression of certain contagious principles may be acquired.

The illustrations adduced to substantiate this opinion are, that "in places where the yellow fever is endemic, as Havana, and Vera Cruz, the inhabitants are not attacked by it, that the Turks in Constantinople seem to be as much habituated to the principle of the plague, which is in almost continual action in some parts of the city, as they are to opium by daily use, and that if hospital physicians are not more frequently the victims of epidemic typhus," it is because they have become inured to the contagion by an early exposure to it. We cannot concur in this opinion, doubting much whether the "force of habit," of which M. Chomel speaks, can be admitted without much reservation. In the absence of direct proof that early exposure to diseases which are palpably contagious, destroys our susceptibility to their attacks, or rather with so much evidence to the contrary, we must seek, in other causes, an explanation of the immunity which the natives of Vera Cruz and the Havana are said to enjoy.

There is an error of fact as well as of analogy in the statement relating to the Turks of Contantinople. The plague has *ceased* to make its appearance in that city, since the year 1837, in which, for the first time, the quarantine laws were rigorously enforced; before this period, it was an annual visitant, and paid no more respect to the natives than it did to others. We feel convinced, that M. Chomel in speaking of "epidemic typhus," does not allude to the disease which we would recognize under this name, but to the typhoid fever, as it occurs in Paris, for there is no want of evidence, that physicians and others, attending on typhus patients, do not enjoy any exemption from the attacks of this disease. This fact has received a melancholy corroboration in the great mortality in the medical staff of the hospitals of Ireland, during the late epidemic of typhus in that country.

Symptomatology and diagnosis are considered separately, a division which is, however, practically neglected, as in the chapter on symptomatology, the signs of disease as well as symptoms are discussed, while in that on diagnosis, the physical aids in the recognition of disease, and the circumstances which bear upon its proper and methodical execution are more particularly treated of.

The *symptoms* of disease are taken up in the following order, as they are furnished by—1st. The functions of relation. 2d. Those of assimilation. 3d. Those of generation. The first class includes such as are furnished by the exterior of the body, by locomotion, by the voice and speech, by the sensations, the affective or intellectual functions, and by the sleeping or waking state. The symptoms included in this class are such as require great medical skill for their appreciation, and we therefore consider the many practical details which so accurate an observer as M. Chomel has here given us, as particularly valuable. Our limits will, however, allow us here the citation of but one practical remark, which we think well worthy of attention. In enumerating the symptoms furnished by the abdomen, M. Chomel says that cases of obstinate vomiting are sometimes met with, which, being attended with considerable emaciation, may lead to the belief of the existence of stomachal cancer, but that in such cases he has sometimes discovered this symptom to be due to a form of hernia not generally known, viz., the engagement of "a small portion of the epiploon in a narrow opening, not easily distinguished, in the lower half of the linea alba below the umbilicus. It is therefore of the greatest importance, in persons attacked with vomiting, to examine with particular care the whole extent of the linea alba, as well as all other parts of the abdominal surface, where hernia is liable to occur." In the 2d class of symptoms, those derived from the digestive organs are first considered.

The semeiology of the tongue receives particular attention, as to its volume, form, movements, colour, moisture, &c. M. Chomel does not believe that the state of the tongue is a true index of that of the stomach, but that the alterations of the colour and evenness of its surface are due to the greater or less intensity of febrile action. The pointed tongue is not peculiar to inflammation of the stomach, and the transverse and often irregular cicatrices which the surface of the tongue sometimes presents, should lead us to suspect epilepsy.

In the section treating of the symptoms furnished by respiration, a clear and concise view is given of the irregularities in the performance of this function, as well as of the phenomena revealed by the physical exploration of the chest. To this are added a few pages upon the semeiology of coughing, expiration and expectoration, together with that of other phenomena of inferior importance. The *sputa* are considered at some length, and their various diagnostic value estimated. In respect of the possibility of recognizing tubercular matter in the sputa, M. Chomel says "that during thirty years in which he has carefully examined the sputa" of phthisical patients, he has "never been able to distinguish these pretended tubercular and melanotic fragments." He describes the sputa which proceed from tubercular softening as "voluminous and abundant, presenting opaque, parallel, or zigzag striæ, in a mass of varying opacity, and floating in a clear and serous liquid." As the disease advances, the proportion of this clear and serous liquid diminishes, and the expectorated matter assumes the aspect of homogeneous pus, and will not mix with water. In the next section, in which are considered the symptoms furnished by the circulation, the author, while adopting the so-called *valvular* theory of the sounds of the heart, admits that it does not accord with a number of pathological facts. The cardiac impulse, he conceives, is produced at the moment of the ventricular contraction, but does not always correspond in force with the augmentation of the volume and muscularity of the heart, for, in some cases of active hypertrophy of this organ, the impulse is not increased in force, and is sometimes even feebler than in the normal condition. It is doubtful whether such exceptions can be explained and reconciled with other phenomena, by any of the theories which are now generally received. In spite of all the experiments made for their elucidation, the causes of the cardiac sounds and impulse still remain in great obscurity. The signs afforded by the pulse are next described. The results obtained by MM. Leuret and Mitiviè show that, instead of diminishing, as was generally supposed, the pulse increases in frequency in the decline of life; a fact, which is fully confirmed by the observations of Dr. Pennock, made at the Philadelphia Hospital, and reported last year in the July No. of this Journal. Many interesting particulars with regard to the symptomatology of the pulse are given, and the employment of the stethoscope for the discovery of the abnormal sounds in the arteries.

The analysis of the blood in disease has, since this work was published, added so much that is interesting to our previous knowledge, and made necessary so many modifications in the opinions which were then held, that we cannot regard the remarks presented under this head as exhibiting the present state of our knowledge of its pathological changes. The natural and morbid exhalations and secretions furnish numerous symptoms which are considered at some length. M. Chomel asserts that "pus is now considered as the result of a morbid exhalation, but that it is remarkable, that it does not present its characteristic appearance, until it has remained a certain length of time upon the organ which furnished it." This statement is, however, somewhat at variance with itself.

According to Rokitansky,* pus is formed out of an albuminous exudation, as may be seen on mucous membranes, open wounds, and abscesses. It is also frequently found in combination with an exudation of fibrin, forming those consistent, obturating plugs which are frequently found in the vessels. Metastatic abscesses are attributed by M. Chomel to the passage of pus into the blood and its deposition in various organs, forming thus an abscess or becoming "the material cause of suppurative inflammation." But, according to Rokitansky, whose observations and judgment are characterized by great minuteness and accuracy, the presence of pus in the vessels, to whatever cause it may be owing, produces in the circulating fibrin a disposition to coagulate. The direct proof of this coagulation cannot be made as regards the capillary system, but it is constantly seen to take place in the large veins, and generally in the vicinity of the suppurating surface. That these abscesses occur chiefly in the capillary system of certain organs, he conceives to be due to the tortuous course which the blood destined for their nutrition, suffers in its passage through them, so that the pus is left longer in contact with the circulating fluid. The metastatic abscess may hence be regarded as one of the changes undergone by the fibrin of the blood in consequence of the presence of pus in the circulating system.

The semeiology of the urine is more concisely treated than its importance at present would justify, but, nevertheless, a very good summary of the changes it undergoes in disease, and of the alteration of the urinary function itself, is given. The symptoms furnished by absorption, nutrition, and the generative functions are then successively considered, and after them, the sympathetic phenomena, the causes modifying the progress and duration of diseases, and their different modes of termination. Under this last head, the doctrine of crisis and critical days is discussed, the antiquity of the belief in their existence alluded to, and a very impartial digest of the arguments both for and against it, given. "The greater number of acute diseases," says Mr. Chomel, "terminate without critical phenomena, and the phenomena which have been dignified with this name are, for the most part, nothing but new diseases which have supervened upon the decline of the first, or the tardily developed symptoms of the original disease, or lastly the simple effect of the re-establishment of previously suspended secretions." He says also, "that the doctrine of critical days, like that of critical phenomena, does not possess the importance attributed to it, that the difficulty of fixing the days of invasion and termination of diseases, renders it inapplicable in many cases, and that it allows both the adherents and antagonists of the theory to interpret the same facts to their advantage."

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* Rokitansky, Path. Anat. I. Bd. s. 210, 242.

In the chapter on diagnosis, M. Chomel considers first the varied importance of the signs upon which this should be founded, the particular value of each being noticed, in the chapter on symptomatology, and also when treating of the different methods of exploration. The conditions necessary for its formation, the proper mode of examination and interrogation of the sick, together with the seat and nature of anatomical lesions, the form and type of sympathetic phenomena, and the circumstances rendering diagnosis difficult or uncertain, occupy the remainder of this division of general pathology. We would call attention in a special manner, to this chapter, for it abounds in hints of great practical value, in the recognition of disease, and reveals the exercise of a sound and discriminating judgment. Very useful precepts are likewise given, for the exploration of diseased organs by means of pressure, palpation, the touch, mensuration, succussion, percussion, auscultation, and the use of the various specula. M. Chomel dismisses with, we think, too imperfect a notice, the employment of the microscope and chemical reagents in pathological investigations. It is, indeed, true that the conducting of experiments under the microscope and the making of elaborate chemical analyses require previous instruction, delicate manipulation only acquired by long practice, and perhaps a natural fondness for such pursuits. Still, the more simple observations and processes can be made after a comparatively short exercise; they require the expenditure of but little time, and by the important results and the great gratification they afford the physician, fully compensate him for his trouble. Indeed, the importance of these results is becoming every day more evident, and without wishing to exaggerate their value above other aids to diagnosis, we would merely remark, that whatever tends to perfect our knowledge of morbid products, promotes in the same degree our acquaintance with disease itself, and furnishes us with new indications for its treatment, which, after all, is the great end of medical study. Among the causes of difficult diagnosis, is the predominance of the general and sympathetic phenomena over those which are local, but still it is to be remembered, that the brain and the heart, which are the organs that most commonly display sympathetic phenomena, are at the same time, far less frequently the seat of actual disease; it is highly important, therefore, that we should be able to discriminate between the one and the other. Cephalalgia and delirium are most frequently sympathetic phenomena, and "have no very precise value in the diagnosis of cerebral affections, except when rigidity and paralysis of one part of the body, debility or loss of general sensibility, or of one or several senses, are added to one or both of these two symptoms." In like manner, syncope, irregularity in the pulsations of the heart, and even the bellows sound in the heart itself may occur quite independently of cardiac disease. The predominance of febrile action and obscurity of local symptoms, are causes of difficult diagnosis, while on the other hand, the absence of fever in old persons may allow the ravages of local and latent disease to pass unsuspected. The rarity of a disease, its complications and deception upon the part of the patient, are all enumerated as giving rise to much embarrassment in the recognition of disease.

The subject of prognosis is considered in a chapter apart. The knowledge of the probable issue of a disease is based upon an acquaintance with its material lesions and sympathetic phenomena, as well as its "natural tendency towards various terminations, the degree of efficacy of remedial measures, age, sex, constitution, causes, antecedent phenomena, mode of attack, course, duration, and in certain cases complications and epidemics."

A summary is given of the more striking morbid phenomena, upon which the prediction of the probable event of diseases may be founded. Most of them are equivocal in their character, their value depending upon the circumstances under which they are produced, and their coincidence with other signs. Thus general insensibility, convulsions, aphonia, meteorism, and involuntary excretions when occurring in an hysterical attack, are of no particular gravity, while if they present themselves in the course of febrile diseases, they are of the most sinister character. The tongue affords valuable aid in prognosis, and its signs are in this view more important than they are in diagnosis. A dry, hard, and trembling tongue, diminution in the size of this organ, and inability to protrude it, are regarded by M. Chomel as of evil significance; the occurrence also of aphthous patches upon the mucous membrane of the mouth in chronic diseases, indicates a fatal termination. Permanent dyspnœa is much more grave than that which occurs in paroxysms, even although in the latter, asphyxia may seem to be imminent, for experience shows that, in emphysema of the lungs, death rarely takes place during the paroxysm. The exfoliation of the epidermis from subjacent parts after the application of leeches, and the insensibility of the skin to the action of sinapsisms and blisters, are almost constantly followed by death. M. Chomel remarks, that it is necessary to guard against misapprehension in the latter case, by assuring ourselves that the inefficiency of these remedies is not due to the inertness of their ingredients.

Our author justly remarks, that to become accomplished in the art of prognosis, something more than a few years of clinical study is required, that a lifetime devoted to close observation, and an impartial appreciation of facts, is scarcely sufficient to enable us to solve the "complex problems which are daily presented to us," and, indeed, that in some cases the most we can do, is to avoid an erroneous opinion, and establish with tolerable precision the various chances appertaining to each particular case. As an introduction to the consideration of morbid anatomy, M. Chomel gives certain directions for the proper performance of *post-mortem* examinations, which will, we think, be found by many of great service. Experience will frequently suggest certain deviations from the rules here laid down, but as a general guide they are certainly correct and useful. The lesions presented by the organs after death, are divided by our author into lesions of the solids, alterations of the fluids, and the presence of foreign bodies living or inanimate. This sketch of a subject which is now deservedly attracting so much attention, and from which such important additions are daily made to medical science, is too superficial, and not at all commensurate with the consideration due to it even in a work of this nature. Indeed, from the interest which, even in the outline here given, M. Chomel contrives to throw around this important branch of general pathology, our regret is increased at his having laid aside his pen before making the picture more perfect. On the other hand, the subject of therapeutics is treated more elaborately, the qualifications necessary to constitute an accurate observer, the difficulties of experiment, the principles upon which it should be conducted, and the limits within which it is allowable, are all exposed in a manner remarkable for its clearness and force. Here we find, too, a most able advocacy and defence of that method of registering and estimating medical experience which has been termed the numerical or statistical. The object of this method is to give a greater precision to our knowledge of the laws and phenomena of disease and of the value of remedies, and M. Chomel shows conclusively, that the objections made to it, are applicable with equal or even greater force to the ordinary method of generalization. It is a common error to imagine that the results obtained by the comparison of numbers, must be received as absolute. Such a claim would be, of course, untenable, for to whatever amount they may be carried, the result must always be approximative, since it will be modified by each subsequent addition. Yet, because it is vain to expect the attainment of perfect exactitude, we are not, therefore, to reject a system which, in view of the variable phenomena of disease, enables us to approach as near as it is possible to a correct appreciation of their import and of the remedial measures necessary in their treatment. Such an objection might be made with equal justice to every branch of human research, and comes with a bad grace from those, who may have established their opinions or practice upon the far more slender foundation of their own loose and limited experience. The value of the numerical method consists principally in its substitution of visible, for invisible quantities, the known for the unknown, and in gradually collecting materials which, when put together, will give precision and consistency to our knowledge of disease. It is no longer contestable, that most of the additions to medical knowledge which have been made within the last few years, and which have a positive value, have been furnished by statistical records. M. Chomel is, as we have said, a disciple of this school of inductive philosophy; nevertheless, he indulges in no unwarranted expectations of the benefits it may be expected to confer upon science, admitting that it is liable to abuse, but justly observes, that this may become the case in any mode of reasoning whatever, and that a method which requires "accuracy and truth as fundamental conditions" is less likely than another to produce deceptive results. Indeed, it offers us the greatest possible security against error, as it exposes distinctly the elements upon which it is founded, and the process by which its results are obtained.

The remainder of the work is occupied with an enumeration of the indications for treatment which are presented by the symptoms of disease, the therapeutical means properly so called, and lastly, a chapter upon the nature of disease, in which our author gives a brief view of the doctrines of the humoralists and the solidists. This chapter, he says, as it but reveals our ignorance of the intimate nature of morbid processes, might have been altogether dispensed with, were it not that "it is no less important in the study of science, to point out the paths which lead to error than those which conduct to a knowledge of truth." It is in the same spirit of true philosophy that the whole work is conceived; nothing is assumed which cannot be readily demonstrated, and we are taught to esteem facts above names and the results of impartial observation above the most captivating theories.

The outline here given will suffice to convey an idea of the contents of the work; we have only to add that the translation is faithfully executed. It adheres as closely to the original as the idiom of our language will allow, and evinces throughout, the bestowal of much care and attention. The notes which have been introduced by the translators, are few in number, but, for the most part, judicious and appropriate, and the mechanical execution of the work bears those marks of neatness and good taste which we are accustomed to look for in the issues of the Boston press.

M. S.